

REMARKS

Claims 1-20 are pending in this application. Claims 4 and 5-8 are rejected under 35 USC §112. Claims 1-4, 7-9, 11-16 and 18-19 1-9, 11-16, 18 and 19 are rejected under 35 USC §102(b) in view of Everhart, US Pat. No. 2,898,060. Claims 10, 17 and 20 are objected to, but would be allowable if rewritten in independent form. Claims 5 and 6 would be allowable if rewritten in independent form and to overcome the above referenced §112 rejection. By this Amendment, claims 1-20 have been cancelled and claims 21-32 have been added. Therefore claims 21-32 are at issue.

New claim 21 corresponds generally with previous claim 6, which was indicated as allowable if rewritten in independent form and to overcome the above-referenced §112 rejection. Claim 21 recites "...the detachable part is rotated by applying a momentum of electromagnetic field forces thereto." Everhart does not disclose the above feature. The support for this can be found in the original description (paragraph 0059 of the Patent Application Publication): "The rotor 3 [the detachable part] can be rotated... using electromagnetic energy, wherein the rotor 3 can be provided with an independent drive including an electric motor 18 (see Fig. 8)." Applicants submit that any electric motor uses a momentum of electromagnetic field forces.

New claim 22 corresponds generally with previous claim 5, which was indicated as allowable if rewritten in independent form and to overcome the above-referenced §112 rejection. Claim 22 recites "...the detachable part is rotated by applying a momentum of heat expansion forces of fuel combustion products thereto." The support for this can be found in the paragraph 0058 of the description: "...the rotor 3 can be rotated...using the thermal energy of combusted fuel, wherein the rotor 3 can be provided with an independent rotary drive including...an internal combustion engine 19 (see Fig. 6). It is assumed that any internal combustion engine provides the heat expansion forces of fuel combustion products. Applicants submit that Everhart neither discloses nor suggests the above feature.

Claim 23 corresponds generally with previous claim 7, which has been rejected. Claim 23 recites "the detachable part is rotated by transferring thereto at least a portion of kinetic rotation energy of at least a part of the object to be gripped." The support for this can

be found in the paragraph 0061 of the description. Specifically the present description indicates rotation of the rotor 3 using the mechanical rotation energy of a part of the object 1 to be gripped which can be a helicopter rotor (see Fig. 2). Everhart neither discloses nor suggests the above feature.

Claim 24 corresponds generally with previous claim 9, which is rejected. Claim 24 recites "...the detachable part is rotated by applying a fuel combustion product emission force thereto." The support for this can be found in the paragraph 0032 of the description: "...wherein the rotor 3 can be provided with rocket engines 11 (see Fig. 5)." The thrust in the rocket engines is generated by emission of fuel combustion products and is referred to as a "reactive force" in the technical literature. Applicants submit that Everhart neither discloses nor suggests the above feature.

Claim 25 corresponds generally with claim 2, which is rejected. Claim 25 recites "...the detachable part is rotated before the moment of its detachment from the object to be gripped." Applicants submit that Everhart does not disclose the above feature. The drogue in Everhart really is detached when the wire 11 is unwound from the reel mounted on the refueling aircraft (column 1, lines 5-55). However Everhart does not mention that the drogue is subjected to the flow (or the slipstream) prior to detachment of the drogue (i.e. the hose is paid out from the reel). Any actions to subject the drogue to the flow prior to its detachment from the refueling aircraft are not mentioned as well. Thus, the drogue can be stationary prior to its detachment, for example, due to the fact that friction forces in bearings are higher than a moment of aerodynamic forces the drogue is subjected to because of being disposed within the aerodynamic shadow of the refueling aircraft prior to its detachment or, for example, because aerodynamic forces are completely absent when the drogue is within the refueling aircraft.

On the contrary, the original Application materials particularly indicate, for example, that the rotor 3 can be rotated by different rotation drives, including independent ones, before it is detached from the object 1 to be gripped.

Claim 26 corresponds generally with previous claim 10, which is indicated as allowable if rewritten in independent form.

Claim 27 is based generally on previous claims 1 and 9. Claim 27 recites “at least a portion of the retaining force is generated by applying a fuel combustion product emission force to at least one detachable part.” Applicants submit Everhart does not disclose this feature.

Claim 28 is based generally on previous claim 1. Claim 28 recites “...at least one retaining aerodynamic force is generated by rotating the detachable part.”

The retaining force disclosed in Everhart is really due to the aerodynamic drag on the hose/drogue as well as the weight of the hose/drogue. There is also the part (the drogue) that rotates about an axis. However, the Applicants submit that the retaining aerodynamic force (the drag force) in Everhart is itself generated by the fluid flow flowing around the drogue and the hose. It is the fluid flow, and not the drogue rotation, which is the reason of generating the drag force. Everhart does not mention the generation of any retaining force which is associated exactly with the drogue rotation. Thus, the rotation of the drogue simply stabilizes its angular position which helps to stabilize the drag force (without the gyroscopic means, “turbulent fluid pressures...produce erratic gyrations on the hose.” See column 1, lines 26-28).

On the contrary, according to the claimed invention, generation of the aerodynamic force R on the rotor 3 should be executed by rotation of the rotor 3 (see Fig. 3), for example, secured on the immobile object 1.

Claim 29 specifies the kinds of drives in claim 28.

Claim 30 is based generally on previous claim 20 which has been indicated as allowable if rewritten in independent form.

Claim 31 is based generally on previous claim 11, which has been rejected. It is Applicants’ understanding that this rejection is connected with interpretation of the words “is...oriented.” Claim 31 deals with orienting at least one rotating detachable part of the object to be gripped. This orientation is understood as actions to set a required angular position of the rotor 3 relative to the object 1 to be gripped (see Figs. 1, 2, 3). These actions generally differ from actions to retain an angular position of the rotor 3 subjected to

perturbation factors (that is, depend upon the stabilization of the rotor 3). Thus, the claimed invention assumes the orientation of the rotor 3: by securing the rotor 3 in a required position on the object 1 to be gripped (see Fig. 2); by generating an orienting aerodynamic force P on the rotor 3 (see Fig. 1); generating an orienting aerostatic force L on the rotor 3 (see Fig. 3); by selecting rigidity characteristics of the mechanical links of the rotor 3 and the object 1 to be gripped (see Figs. 1, 2, 3). At the same time, the orientation of the rotor 3 is very important for the claimed invention because it is an angular position (an orientation) of the rotor 3 that defines a direction of basic retaining forces which are forces applied to the rotor 3. Applicants note that Everhart does not mention any actions to set a required angular position (an orientation) of the drogue. Along with this, the drogue of Everhart is subjected to the drag force which can both set its required angular position (orient the drogue) and prevent from setting the required angular position (disorient the drogue). Thus placement of assemblies for securing the hose to the drogue behind its aerodynamic focus and in accordance with an angle of attack results in the disorientation effect of the drogue drag force. At the same time, the drag force acting to the hose of Everhart can have no effect upon the drogue orientation, for example, because of insufficient hose rigidity.

Claim 32 is based on previous claim 17, which has been indicated as allowable if rewritten as independent form.

In view of the above Amendment, Applicants submit that the pending application is in condition for allowance. Should the Examiner wish to discuss the foregoing, or any matter of form or procedure in an effort to advance this application to allowance, the Examiner is urged to contact the undersigned attorney.

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Respectfully submitted,

By 

Thomas K. Stine

Registration No.: 32,310

MARSHALL, GERSTEIN & BORUN LLP

233 S. Wacker Drive, Suite 6300

Sears Tower

Chicago, Illinois 60606-6357

(312) 474-6300

Attorney for Applicant